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L3: (1637) 369/44.27
L4: (1956) 369/44.29
L5: (9213) G11B007/08
L6: (15413) G11B007/085
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DBs: USPAT

Default operator: OR

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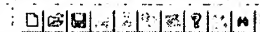
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☐ Pending
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L1: (1) 10/803909
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 L3: (1637) 369/44.27
 L4: (1956) 369/44.29
 L5: (9213) G11B007/08
 L6: (15413) G11B007/085
 L7: (93367) (sum\$3 near5
 L8: (1097024) ((push adj:
 L9: (34670) spot near5 si
 L10: (20969) 7 and 8
 L11: (654) 9 and 10
 L12: (20159) (sacd (audic
 L13: (25) 11 and 12

DBs: USPAT
 Default operator: OR

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6	BRS	L6	15413	G11B007/085	US-P	2007/04/1				
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7	BRS	L7	93367	(sum\$3 near5 signal)	US-P	2007/04/1				
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8	BRS	L8	10970	((push adj3 pull)pp)	US-P	2007/04/1				
			24		GPUB	7 08:13				
9	BRS	L9	34670	spot near5 size	US-P	2007/04/1				
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11	BRS	L11	654	9 and 10	US-P	2007/04/1				
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12	BRS	L12	20159	(sacd (audio near8	US-P	2007/04/1				
			cd))		GPUB	7 08:14				
13	BRS	L13	25	11 and 12	US-P	2007/04/1				
					GPUB	7 08:14				

US-PAT-NO: 5848043
DOCUMENT- US 5848043 A
IDENTIFIER:

TITLE: Modulation of laser power in accordance with a linear velocity by pulse division schemes

Brief Summary Text - BSTX (10):

In the recording medium of phase-change type as described above, since the thermal process during recording and erasing is significantly affected by the scanning speed of laser beam, i.e., linear velocity on a disc, composition of the recording layer and multilayer structure thereof should be optimized for the linear velocity on the disc in order to improve recording and erasing performance. Formation of an amorphous mark is generally performed by melting an . μ m-size portion of a recording layer by irradiation with a recording power, followed by cooling at a rate higher than a critical cooling rate. In detail, a high cooling rate is effected by a high linear velocity, while a low cooling rate is effected by a low linear velocity.



US005848043A

(19) (11) Patent Number: 5,848,043
(45) Date of Patent: Dec. 8, 1998

ER IN VELOCITY

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Kanagawa,

poration.

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7-100387
7-64186
7-116330
7-187132
7-238547
8-17479

D: G11B 11/10
369/54; 369/59
70:1; 369/253,
34, 116, 54, 59

ITS

OTHER PUBLICATIONS

International Symposium on Optical Memory, pp. 33-34, 1995, Bor-Wen Yang, et al., "Readout Scheme by Pulsed Irradiation Center Aperture Detection on Magnetically Induced Super Resolution MO Disks."

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Japanese Journal of Applied Physics, vol. 30, no. 4, pp. 677-681, April, 1991, Elji Ohno, et al., "Multipulse Recording Method for Pulse-Width Modulation Recording on an Erasable Phase Change Optical Disk".

Japanese Journal of Applied Physics, vol. 31, no. 2B, pp. 584-589, February, 1992, Hisataka Sugiyama, et al., "Analysis of Leading Edge/Trailing Edge Independent Detection Method in Optical Disk".

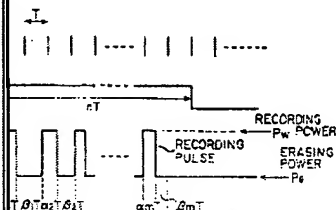
Proc. Int. Symp. On Optical Memory, pp. 291-296, 1991, Kenichi Nishituchi, et al., "Feasibility Study of Ge-Sb-Te Phase-Change Optical Disk Medium for One-Pass Overwrite Digital Audio Recording".

Primary Examiner—David C. Nelms
Assistant Examiner—Kim-Kwok Chu
Attorney, Agent, or Firm—Obilon, Spivak, McClelland, Maier & Neustadt, P.C.

[57] ABSTRACT

An optical recording process for recording data on a recording medium of phase-change type employs laser power modulation scheme for mark-length modulation recording. The process selects one of pulse division schemes for modulating the laser power in accordance with a linear velocity on the disc. The recording laser includes m pulses for nT mark having a power level P_w and a duration of αT , with m intervals βT sandwiched therebetween, wherein on condition that $m = n - k$ and $\Sigma \alpha_i + \Sigma \beta_i = n - j$, α , or bias power P_b , is changed in accordance with the linear velocity, P_b being a bias power level for modulation, k and j being an integer and a real number, respectively, both selected between 0 and 2. A large range of the linear velocity margin can be obtained for the disc without changing either the composition of the phase-change material or multi layer structure on the disc.

14 Claims, 21 Drawing Sheets



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    ☒ L2: (129) 369/44.29
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